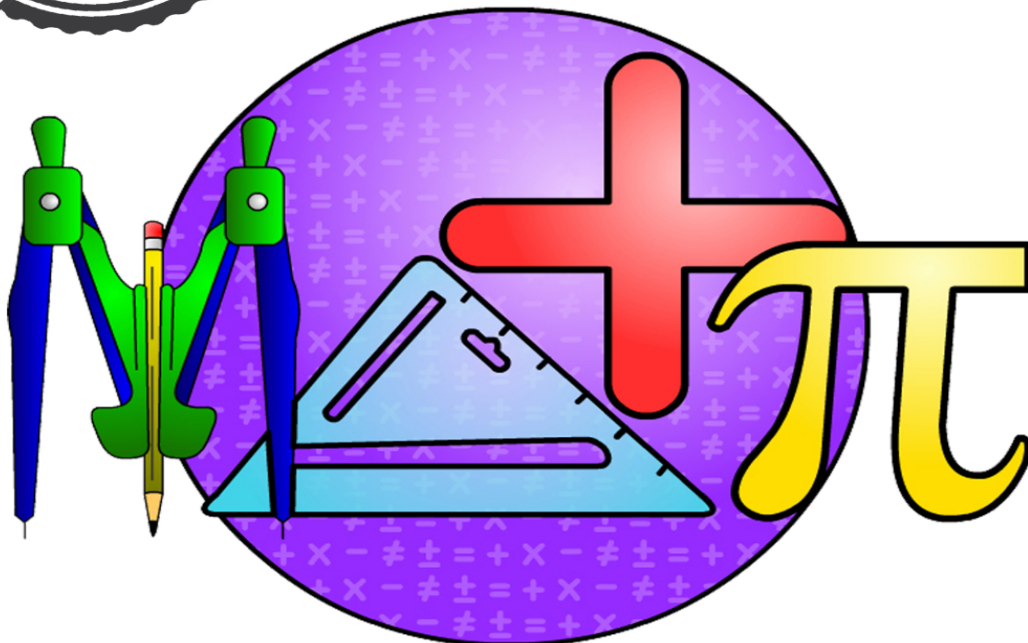




*The Legend*



# First term

**Student Name** .....

**Class** .....

**Just for Study groups**

# Sheet 1

To	
Lesson	1
Unit	1

## 1 Choose the correct answer between brackets :

[a]  $50 : 300 = \dots\dots\dots$  (  $2 : 5$  or  $\frac{1}{5}$  or  $1 : 6$  or  $\frac{1}{10}$  )

[b]  $\frac{3}{5} : \frac{5}{8} = \dots\dots\dots : 25$  (  $24$  or  $27$  or  $15$  or  $40$  )

[c]  $5.5 : 22 = \dots\dots\dots : \dots\dots\dots$  (  $5 : 2$  or  $4 : 1$  or  $1 : 4$  or  $2 : 5$  )

[d]  $1.5 : 2.5 = \dots\dots\dots$  (  $5 : 3$  or  $\frac{3}{5}$  or  $3 : 25$  or  $\frac{5}{9}$  )

[e] The ratio between the length of a side of a square and its perimeter  
=  $\dots\dots\dots : \dots\dots\dots$  (  $1 : 1$  or  $4 : 1$  or  $1 : 4$  or  $1 : 16$  )



## 2 Complete each of the following :

[a] The ratio is  $\dots\dots\dots$

[b] In the ratio  $\frac{9}{17}$ , the first term is  $\dots\dots\dots$  and the second term is  $\dots\dots\dots$

[c] The radius length of a circle : the circumference of the  
circle =  $\dots\dots\dots : \dots\dots\dots$

[d]  $\frac{2}{3} : 3\frac{1}{3} = \dots\dots\dots : \dots\dots\dots$  (in the simplest form)

[e] The ratio between the perimeter of an equilateral triangle and its  
side length is  $\dots\dots\dots : \dots\dots\dots$



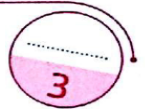
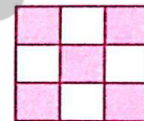
## 3 In the opposite figure :

Find the ratio between :

[a] The number of coloured squares and the number of all squares.

[b] The number of uncoloured squares and the number of coloured squares.

[c] The number of all squares and the number of uncoloured squares.



## 4 [a] A school has 200 pupils , if 80 pupils of them are girls , find the ratio between the number of boys and the number of girls.

[b] Put each of the following ratios in its simplest form :

(1)  $5 : \frac{5}{4}$

(2)  $2\frac{2}{3} : 1\frac{1}{3}$

(3)  $\frac{1}{3} : 0.2$

(4)  $\frac{15}{45}$

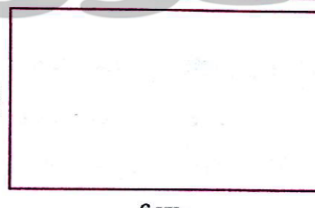
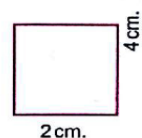


## 5 In the opposite figure :

Find the ratio between :

[a] The perimeter of the square  
and the perimeter of the rectangle.

[b] The area of the square and the area of the rectangle.





To	
Lesson	2
Unit	1

## 1 Complete each of the following :

- [a]  $\frac{1}{4}$  hour : 20 minutes = ..... : ..... (in the simplest form)
- [b]  $4.5 : 9 = \dots\dots\dots : \dots\dots\dots$
- [c] P.T. 50 : L.E.  $1\frac{1}{2} = \dots\dots\dots : \dots\dots\dots$  (in the simplest form)
- [d] The ratio between the lengths of two sides of a square is ..... : .....
- [e] 2 m. : 400 cm. = 1 : .....



## 2 Choose the correct answer between brackets :

- [a] The diameter length of the circle : its circumference = .....  
(  $1 : 2\pi$  or  $1 : \pi$  or  $\pi : 1$  or  $2\pi : 1$  )
- [b]  $\frac{1}{8}$  kg. : 100 gm. = ..... (  $4 : 5$  or  $5 : 2$  or  $8 : 15$  or  $5 : 4$  )
- [c] 16 kirats : 1 feddan = .....  
(  $16 : 1$  or  $2 : 3$  or  $3 : 2$  or  $8 : 3$  )
- [d]  $\frac{2}{3} : \frac{3}{4} = \dots\dots\dots$  ( in the simplest form )  
(  $8 : 9$  or  $2 : 3$  or  $2 : 4$  or  $8 : 7$  )
- [e] 18 hours : one day = .....  
(  $2 : 9$  or  $1 : 3$  or  $3 : 4$  or  $4 : 3$  )



## 3 Find each of the following ratios in its simplest form :

- [a] 6 days : 2 weeks                      [b] 5 dm. : 5 m.
- [c] 5 kg. : 7 000 gm.                      [d]  $\frac{1}{2}$  L. : 250 mL.

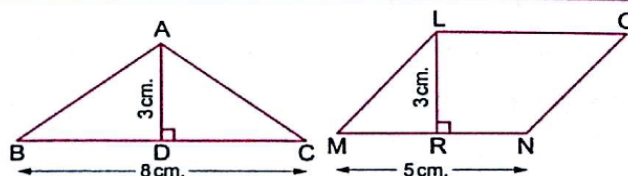


## 4 The distance between Adel's house and the sport's club which he joins is 350 metres and the distance between his house and his school is 1.4 kilometres. What is the ratio between the two distances ?

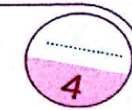
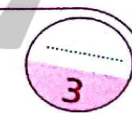


## 5 In the opposite figure :

Find the ratio between the area of the triangle ABC and the area of the parallelogram LMNO



To	
Lesson	3
Unit	1



## 1 Complete :

[a] If the ratio between Tamer's height and Hend's height is 9 : 8 and the difference between their heights is 20 cm. , then the height of Hend is ..... cm.

[b] The ratio between two numbers = .....

[c] P.T. 750 : L.E. 10 = ..... : .....

[d] A rectangle of perimeter 42 cm. and the ratio between its length and its width is 5 : 2 , then its length is ..... cm. and its width is ..... cm.

[e] 300 gm. :  $1\frac{1}{2}$  kg. = ..... : ..... (in the simplest form)

2 If the ratio between the number of boys and the number of girls in a class is 2 : 3 , if the number of boys is 12 , find the number of girls.

## 3 Choose the correct answer between brackets :

[a] Two wires , the ratio between their lengths is 3 : 4 and the length of the first wire is 75 cm. , then the length of the second wire is ..... m. ( 1 or 100 or 10 )

[b] If the area of a rectangle is 40 cm<sup>2</sup>. and its length is 0.8 dm. , then the ratio between its length and width = ..... : ..... ( 5 : 8 or 8 : 5 or 5 : 1 )

[c] The ratio between what Yassmien and Marwa has is 3 : 5 , if Marwa has 40 pounds , then Yassmien has ..... pounds. ( 30 or 15 or 24 )

[d] The ratio 12 : 18 in its simplest form by dividing both terms by ..... ( 2 or 3 or 6 )

[e] If the sum of two numbers is 40 and the ratio between them is 3 : 5 , then the smaller one = ..... ( 8 or 15 or 25 )

4 If the sum of two amounts of money is L.E. 1800 and the ratio between the two amounts is 2 : 7 , find each of the two amounts.

5 The ratio between the length and the width of a rectangle is 7 : 4 , if the width is less than the length by 21 cm. , then find the area of the rectangle.



To	
Lesson	4
Unit	1

## 1 Complete each of the following :

- [a]  $12 : 18 : 30 = \dots : \dots : \dots$  (in the simplest form)
- [b]  $2.5 : 5 : 3.5 = \dots : \dots : \dots$  (in the simplest form)
- [c]  $0.5 \text{ km.} : 700 \text{ m.} : 900 \text{ m.} = \dots : \dots : \dots$  (in the simplest form)
- [d] If  $a : b = 3 : 5$  and  $b : c = 2 : 5$ , then  $a : b : c = \dots : \dots : \dots$
- [e] The ratio between the side length of a rhombus and its perimeter  
=  $\dots : \dots$



## 2 [a] If the ratio between the measures of the angles of a triangle is $3 : 4 : 5$ Find the measure of each angle of the triangle.

- [b] The ratio between two numbers is  $5 : 6$ , if their sum is 297  
Find the two numbers.



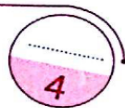
## 3 Choose the correct answer between brackets :

- [a] If  $a : b = 5 : 6$  and  $b : c = 3 : 4$ , then  $a : c = \dots : \dots$   
(  $3 : 5$  or  $5 : 3$  or  $5 : 8$  or  $8 : 5$  )
- [b]  $\frac{1}{2} : \frac{1}{3} : \frac{1}{4} = \dots : \dots : \dots$   
(  $2 : 3 : 4$  or  $4 : 3 : 2$  or  $6 : 4 : 3$  or  $3 : 4 : 2$  )
- [c] 400 piastres : 12 pounds =  $\dots : \dots$   
(  $1 : 3$  or  $3 : 1$  or  $1 : 4$  or  $2 : 3$  )
- [d] The ratio between three numbers is  $3 : 4 : 7$  and their sum is 70,  
then the greatest number is  $\dots$  (  $15$  or  $35$  or  $20$  or  $14$  )
- [e]  $16 : 48 = \frac{1}{\dots}$  (  $2$  or  $4$  or  $5$  or  $3$  )

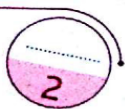


## 4 [a] A piece of land in the form of a triangle, the ratio between its side lengths is $4 : 6 : 7$ , if the perimeter of this land equals 51 m. Find the lengths of its sides.

- [b] If the ratio between Adam's money : Nada's money : Seif's money is  $6 : 5 : 2$ , and the difference between Adam's money and Seif's money is L.E. 200 Find the money of each one of them.



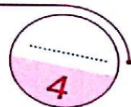
## 5 If L.E. 988 is divided among Mohamed, Hany and Amr such that the share of Mohamed is $\frac{1}{2}$ of that of Hany and the share of Hany is $\frac{3}{2}$ of that of Amr. Find the share of each of them.





# Sheet 5

To	
Lesson	5
Unit	1



## 1 Choose the correct answer between brackets :

[a] A tractor ploughs 14 feddans in 3.5 hours , then the rate of performance of the tractor = ..... feddans / hour. (  $\frac{1}{4}$  or 4 or 10.5 or 7 )

[b] A factory produces 4 000 cans for juice during 8 hours , then the rate of the production is ..... cans/hour  
( 32 000 or 500 or 5 000 or 4 008 )

[c] A machine produces 500 m. of material in 2 hours and half, then the rate of the production of this machine is ..... m./hour.  
( 400 or 125 or 1 000 or 200 )

[d] If Omar drinks 14 glasses of milk weekly , then the rate of what he drinks daily is ..... glasses. ( 3 or 7 or 14 or 2 )

2 [a] If a car covers 270 km. in three hours , find the average speed of the car through this trip.

[b] The number of pupils in the sixth grade in a school is 260 , the ratio between the number of boys to the number of girls is 6 : 7  
Find the number of each of boys and girls in this grade.

3 [a] If the ratio between Bassem's share : Mina's share : Amgad's share is 3 : 4 : 5 and the share of Bassem is L.E. 24  
Calculate the share of each of Mina and Amgad.

[b] A factory produces 200 bottles of juice in 10 hours.  
Calculate the production rate of the factory.

4 [a] A machine produces 450 kg. of metal in 3 hours. Calculate the rate of production of the machine.

[b] If a worker paints a wall of area  $45 \text{ m}^2$  in 5 hours , what is the rate of his work ? and how many square metres does the same worker paint in 7 hours ?

5 [a] The ratio between the heights of two buildings is 3 : 7 , if the second building is 35 m. high. Find the height of the first building.

[b] A car consumes 160 litres of petrol to cover a distance of 240 km.  
Find the rate of consumption petrol of that car.

# Sheet 6

To	
Lesson	1
Unit	2

## 1 Complete each of the following :

[a] The proportion is .....

[b]  $\frac{7}{12} = \frac{28}{\dots\dots\dots} = \frac{\dots\dots\dots}{36}$

[c]  $\frac{8}{\dots\dots\dots} = \frac{1}{3} = \frac{\dots\dots\dots}{15}$

[d]  $\frac{\dots\dots\dots}{6} = \frac{12}{18} = \frac{6}{\dots\dots\dots} = \frac{\dots\dots\dots}{3}$

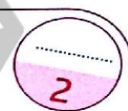
[e] 150 gm. :  $\frac{1}{4}$  kg. = ..... : .....



## 2 A car consumes 12 litres of petrol in 150 km.

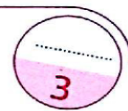
Complete the following proportion table :

<b>Petrol in litre</b>	12	.....	36
<b>Distance in km.</b>	150	100	.....



## 3 Complete the following table to make the corresponding numbers in the two rows proportional :

1.3	.....	1	3	.....	5.5	.....
.....	5	10	.....	45	.....	6.7



## 4 The number of pupils in a primary school is 400 pupils , if the number of girls is 250 , find :

[a] The ratio between the number of girls and the number of boys.

[b] The ratio between the number of boys and the number of all pupils.



## 5 A machine produces 16 units from a certain product in 4 hours , what is the rate of the machine ? then how long does this machine take to produce 25 units ?





To	
Lesson	2
Unit	2

## 1 Complete :

- [a] The product of the extremes = the product of .....
- [b] The fourth proportional term in 3 , 6 and 12 is .....
- [c] If 3 ,  $x$  , 12 and 16 are proportional numbers , then  $x$  = ..... and it is called the ..... term.
- [d] If  $\frac{5}{9} = \frac{15}{x}$  , then  $x$  = .....
- [e] If  $\frac{a}{b} = \frac{x}{y}$  , then  $a \times y$  = .....  $\times$  .....



## 2 Complete the missing number in each of the following proportions :

- [a] 2 , 11 , 8 , ..... [b] 5 , 8 , ..... , 24
- [c] 9 , ..... , 4.5 , 4 [d] ..... , 7 , 24 , 56

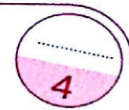


## 3 Choose the correct answer :

- [a] If  $\frac{a+6}{20} = \frac{1}{2}$  , then  $a$  = ..... ( 6 or 4 or 3 or 10 )
- [b] If the numbers 2 , 3 , 4 and  $x$  are proportional , then the value of  $x$  = ..... ( 5 or 6 or 7 or 8 )
- [c]  $\frac{2}{5} = \frac{\text{.....}}{17.5}$  ( 35 or 10 or 7 or 2.5 )
- [d] 18 hours : one day = ..... ( 18 : 1 or 4 : 3 or 3 : 4 or 2 : 3 )
- [e] If  $3a = 4b$  , then  $\frac{a}{b} = \text{.....}$  (  $\frac{3}{4}$  or  $\frac{2}{3}$  or  $\frac{4}{3}$  or  $\frac{3}{2}$  )



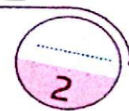
- 4 [a] A car consumes 20 litres of fuel to cover a distance of 180 km.  
How many litres are needed to cover 540 km.



- [b] If the ratio among the heights of three buildings is 3 : 4 : 5 , the height of the first building is 21 m. Calculate the height of the second and the third buildings.

- 5 A machine produces 1 400 m. of textile in two hours.

Calculate the needed time to produce 4 900 m. of textile.





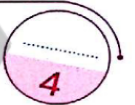
To	
Lesson	3
Unit	2

## 1 Complete :

- [a] The drawing scale = .....
- [b] If the drawing scale is 1 : 300 , and the length in drawing is 2 cm. , then the length in reality = ..... metres.
- [c] If the drawing length of an object is 3 cm. and its real length is 30 metres , then the drawing scale is .....
- [d] The ratio  $\frac{5}{13}$  , its first term is ..... and its second term is .....
- [e] If the drawing scale is less than 1 , then it refers to .....



- 2 [a] The distance between two cities is 20 km. , if the distance between them on a map is 4 cm.  
Find the drawing scale of this map and what does it mean ?



- [b] The real length of an insect is 0.4 mm. and its length under a microscope is 2 cm. , find the ratio of magnification.

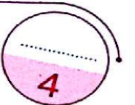
- 3 Cairo tower is one of the tourists places of Cairo , its height is 187.2 m. , if its height in a picture is 13 cm.



- [a] Find the drawing scale.

- [b] If the length of a neighboured building in the same picture is 3.5 cm.  
Find its real length.

- 4 [a] The ratio of the production of three factories for TV sets is 3 : 2 : 1 , if the sum of their production is 9 600  
Find the production of each one.



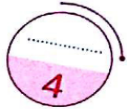
- [b] An engineer drew a map of a rectangular garden with a scale 1 : 3 000  
Find the real area of this garden if its dimensions on the map are 3.6 cm. and 2 cm.

- 5 [a] The real distance between Cairo and Alexandria is 220 km. , find the distance between them on a map drawn with a scale 1 : 500 000

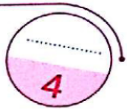


- [b] A magnified picture of an insect was photographed by a scale 200 : 1  
Find the length of the insect in the picture if its real length is 0.14 mm.


To	
Lesson	4
Unit	2

- 1 [a] Distribute L.E. 360 among three persons in the ratio 5 : 3 : 4  
 [b] The difference between two numbers is 12 and the ratio between them is 5 : 7 Find the two numbers. 

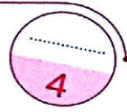
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- 2 Three persons participated in a commercial , the first paid L.E. 15 000 , the second paid L.E. 25 000 and the third paid L.E. 20 000  
 At the end of the year , the profit was L.E. 5 520  
 Find the share of each of them. 

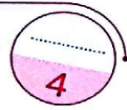
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- 3 [a] A map is drawn with a scale 1 : 1 000 000 Find the real distance between El-Fayoum and Beni Suef in kilometres if the map distance is 5 cm. 
- [b] If the ratio of the production of 3 factories for a certain type of washing machines is 5 : 4 : 3 , and the production of the third factory is 3 600 washing machines.  
 Find the production of the first and the second factories.

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- 4 A load of apple weighs 330 kg. is distributed among three merchants in which the share of first =  $\frac{2}{3}$  the share of the second , and the share of the second =  $\frac{1}{2}$  the share of the third , calculate the share of each of them from this load. 

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- 5 A man died leaving 192 feddans of land to be distributed among his wife , 2 sons and 3 daughters , the share of the wife is  $\frac{1}{8}$  of the whole land , and the share of the son is twice that of the daughter.  
 Find the share of the wife and the share of each son and daughter. 

To	
Lesson	5
Unit	2

## 1 Complete :

[a] The percentage is .....

[b]  $\frac{6}{25} = \dots\dots\dots \%$

[c]  $1\frac{3}{4} = \dots\dots\dots \%$

[d]  $70\% = \dots\dots\dots$  (in a fractional form)

[e]  $1 - (35\% + 20\%) = \dots\dots\dots \%$

## 2 Convert each of the following into a percentage :

[a] 0.07

[b]  $\frac{3}{5}$

[c]  $\frac{9}{20}$

[d] 0.6

## 3 If $\frac{x}{40} = 35\%$ ,

find the value of  $x$

## 4 [a] In a class , there are 48 pupils , if 6 of them are absent.

Find the percentage of absentees and also the percentage of attendance.

[b] An amount of money was distributed among Heba , Hend and Nada in the ratio  $2 : 3 : 4$  , if Nada's share is L.E.15 more than Heba's share. Find the total amount of the money.

## 5 [a] The monthly salary of an employee is L.E. 936 He saved L.E. 117

Find the percentage of what he saved to its salary.

[b] The real distance between Cairo and Banha is 40 km. and the distance between them on the map is 8 cm.

Find the drawing scale for this map.



# Sheet 11

To	
Lesson	6
Unit	2

## 1 Choose the correct answer between brackets :

[a]  $50\% + \frac{1}{5} = \dots\dots\dots\%$  ( 55 or 70 or 45 or 10 )

[b] If 9 ,  $x$  , 24 and 32 are proportional quantities , then  $x = \dots\dots\dots$   
( 12 or 15 or 3 or 6 )

[c] 45 % of 300 pounds =  $\dots\dots\dots$  pounds  
( 45 or 35 or 150 or 135 )

[d] If a merchant bought a TV set for L.E. 1 000 , then sold it for L.E. 1 200 , then the percentage of profit is  $\dots\dots\dots\%$   
( 20 or 30 or 15 or 45 )

[e] Khaled bought a car in the price L.E. 60 000 and he sold it with profit 5 % , then the selling price of the car is L.E.  $\dots\dots\dots$   
( 61 000 or 62 000 or 63 000 or 65 000 )

2 [a] A trader sold goods for L.E. 550 with a profit of 10 %  
Find the cost price of the goods.

[b] A piece of cloth of 10 metres long is put in water , it shrank by 5 %  
from its original length. Find its length after shrinking.

3 [a] The length of a road is 120 km. , it is wanted to pave the road in three months. If 42 % in the first month and 28 % in the second month. How many kilometres will be paved in the third month ?

[b] Ramy deposited L.E. 3 000 in a bank with an interest 11%  
Find the total amount after one year.

4 [a] The price of a TV set is L.E. 1 450 , in the sale , its price becomes L.E. 1 160 Find the percentage of the discount.

[b] XYZ is a triangle in which  $XY : YZ : ZX = 4 : 5 : 7$   
and  $ZX = 28$  cm. Find the perimeter of the triangle.

5 A trader bought some goods for L.E. 960 and spent L.E. 20 for transportation , then he sold it with profit 20 %  
Find the selling price.

To	
Lesson	1
Unit	3

## 1 Complete each of the following :

[a] The two diagonals are equal in ..... and .....

[b] In the opposite figure :

ABCD is a parallelogram

,  $(\angle A) = 50^\circ$

, then  $m(\angle B) = \dots\dots\dots^\circ$

[c] The rhombus is a parallelogram in which two adjacent sides are .....

[d] A parallelogram in which its diagonals are equal in length is called .....

[e] The shape that the two diagonals are perpendicular and equal in length is .....



## 2 In the opposite figure :

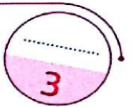
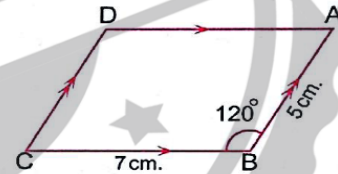
ABCD is a parallelogram in which

$AB = 5 \text{ cm.}$  ,  $BC = 7 \text{ cm.}$  ,

$m(\angle ABC) = 120^\circ$

Without using geometrical instruments

Find :  $m(\angle ADC)$  , the length of  $\overline{DC}$  and the length of  $\overline{AD}$

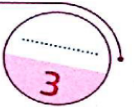
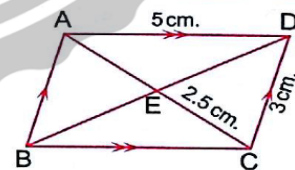


## 3 In the opposite figure :

ABCD is a parallelogram in which

$CD = 3 \text{ cm.}$  ,  $EC = 2.5 \text{ cm.}$  ,  $AD = 5 \text{ cm.}$

Find the length of each of :  $\overline{AB}$  ,  $\overline{BC}$  and  $\overline{AC}$



## 4 [a] A map is drawn for the Suez Canal with a scale 1 : 500 000 ,

if the length of the canal on the map is 34.6 cm.

Calculate its real length in kilometres.



[b] In the opposite figure :

A parallelogram in which ,  $m(\angle BAD) = 53^\circ$  ,

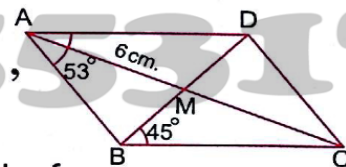
$m(\angle DBC) = 45^\circ$  ,  $AM = 6 \text{ cm.}$

Calculate without using measuring tools each of :

(1)  $m(\angle ABD)$

(2)  $m(\angle ADC)$

(3)  $AC$



- 5** [a] A discount 20 % was made for the price of a book , its price becomes L.E. 12 What is its price before the discount ?



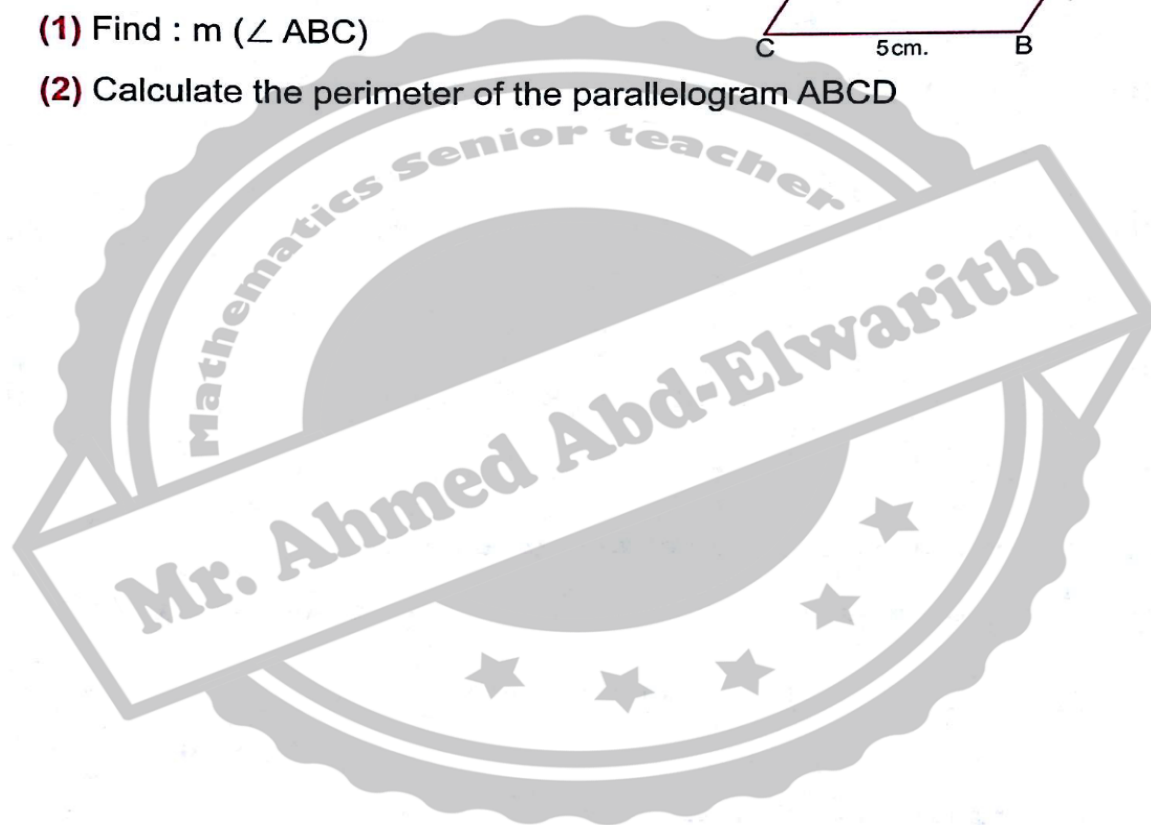
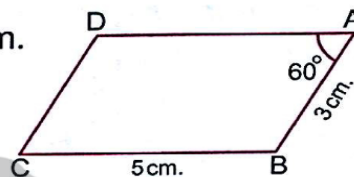
[b] *In the opposite figure :*

ABCD is a parallelogram which has  $AB = 3 \text{ cm.}$

,  $BC = 5 \text{ cm.}$  ,  $m(\angle BAD) = 60^\circ$

(1) Find :  $m(\angle ABC)$

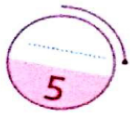
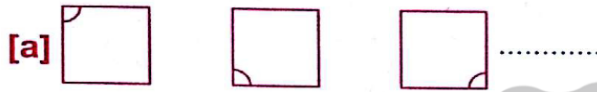
(2) Calculate the perimeter of the parallelogram ABCD



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**1** Draw the next shape in each pattern in each of the following :



**2** Choose the correct answer between brackets :

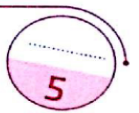
[a] If  $\frac{5}{9} = \frac{15}{x}$ , then  $x =$  ..... ( 3 **or** 5 **or** 15 **or** 27 )

[b] ..... (in the same pattern)  
( **or** **or** **or** )

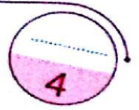
[c] 30 % of a number equals to .....  
( its third **or** its three tenths **or** its three fifths **or** its three sevenths )

[d] .....  
(The description of the pattern is repetition of ..... )

[e]  $\frac{9}{20} =$  ..... %  
( 40 **or** 45 **or** 60 **or** 90 )



**3** [a] A sum of money is divided between two persons in the ratio 3 : 5 ,  
if the share of the second exceeds the share of the first by 30 pounds.  
Find the share of each one.



**[b]** Discover the following pattern , then write its description :



(The description of the pattern is repetition of ..... )

**4** In the opposite figure :

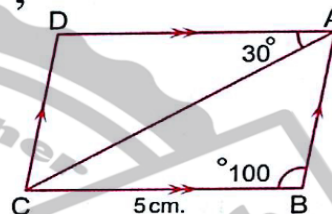
ABCD is a parallelogram in which  $m(\angle B) = 100^\circ$  ,  
 $m(\angle CAD) = 30^\circ$  and  $BC = 5$  cm.

Find :

**[a]**  $m(\angle D)$

**[b]**  $m(\angle ACD)$

**[c]** The length of  $\overline{AD}$



**5** A photo is taken for an insect by enlargement ratio  $100 : 1$  , if the actual length of the insect length is 0.7 mm.

Find the length of the insect in the picture.

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To	
Lesson	3
Unit	3

- 1** Find the volume of each of the following figures considering the unit of volume is  $\text{cm}^3$  :

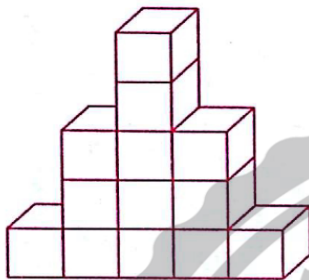


Fig. (1)

The volume = .....  $\text{cm}^3$

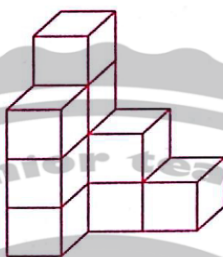


Fig. (2)

The volume = .....  $\text{cm}^3$

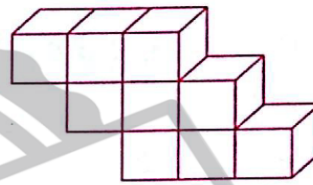


Fig. (3)

The volume = .....  $\text{cm}^3$

- 2** Complete each of the following :

- [a] In the cuboid , each two opposite faces are ..... and .....  
 [b] In the cube , there are ..... edges and ..... vertices.  
 [c]  $17 \text{ m}^3 = \dots\dots\dots \text{dm}^3$   
 [d] If the dimensions of a cuboid are equal in length , then it is called .....  
 [e] The cubic centimetre is .....

- 3** Choose the correct answer between brackets :

- [a] If the numbers 2 , 3 , 4 and  $x$  are proportional , then  $x = \dots\dots\dots$   
 ( 8 or 12 or 6 or 9 )  
 [b] Each of cube and cuboid has ..... faces. ( 8 or 12 or 6 or 4 )  
 [c]  $3 \text{ 250 mm}^3 = \dots\dots\dots \text{cm}^3$  ( 3.25 or 32.5 or 0.325 or 325 )  
 [d]  $7 \text{ dm}^3 = \dots\dots\dots \text{cm}^3$  ( 0.007 or 7 000 or 700 or 70 )  
 [e] In the cube , all the edges are .....  
 ( different in length or equal in length or parallel or intersecting )

- 4** [a] The ratio between the number of boys and the number of girls in a school is 5 : 3 , if the number of boys is 200  
 Find the number of girls.  
 [b] The price of a radio is L.E. 180 There is a discount 10 %  
 Find its price after discount.

- 5** [a] Arrange each of the following ascendingly :

$5 \text{ m}^3$  ,  $500 \text{ 000 cm}^3$  and  $50 \text{ dm}^3$

- [b] The distance between Luxor and Qena is 60 km. If the distance between them on a map is 6 cm. Find the drawing scale of this map.

To	
Lesson	4
Unit	3



## 1 Complete each of the following :

- [a] The volume of the cuboid = .....  $\times$  height
- [b] The volume of the cuboid whose dimensions are 5 cm. , 6 cm. and 8 cm. is .....  $\text{cm}^3$
- [c] If the volume of a cuboid is  $36 \text{ cm}^3$  and its base area is  $12 \text{ cm}^2$  , then its height = ..... cm.
- [d] The base area of the cuboid = .....
- [e] The volume of the cuboid = .....  $\times$  .....  $\times$  .....

- 2 [a] Which is greater in volume , a cuboid of dimensions 24 cm. , 36 cm. and 50 cm. or a cuboid of base area  $88 \text{ cm}^2$  and height 45 cm. ?
- [b] A cuboid-shaped box of dimensions 12 cm. , 6 cm. and 18 cm. was filled with pieces of sweets , each piece in the shape of a cuboid of dimensions 2 cm. , 1 cm. and 3 cm.  
Find the number of the pieces that filled the box.

## 3 Choose the correct answer between brackets :

- [a] The volume of cuboid whose dimensions are 20 cm. , 30 cm. and 40 cm. = .....  $\text{cm}^3$  ( 2 400 **or** 9 000 **or** 24 000 **or** 90 )
- [b] If the volume of a cuboid is  $1\,800 \text{ cm}^3$  and its base dimensions are 30 cm. and 10 cm. , then its height = ..... cm.  
( 9 **or** 6 **or** 12 **or** 15 )
- [c] The number of faces of the cuboid is .....  
( 4 **or** 6 **or** 12 **or** 8 )
- [d] If a cuboid of volume  $72 \text{ cm}^3$  , its height is 6 cm. and its length is 4 cm. , then its width = ..... cm. ( 12 **or** 9 **or** 6 **or** 3 )
- [e] Cubic decimetre is a unit for measuring .....  
( length **or** volume **or** weight **or** area )

- 4 The sum of dimensions of a cuboid is 240 cm. and the ratio among them is 2 : 3 : 5 Find its volume.

- 5  $3\,600 \text{ cm}^3$  of water was poured in a cuboid-shaped vessel with a square base of side length 20 cm. Find the height of water in the vessel.



To	
Lesson	5
Unit	3

## 1 Complete :

- [a] The volume of the cube = .....  $\times$  .....  $\times$  .....
- [b] A cube of edge length 6 cm. , its volume = .....  $\text{cm}^3$ .
- [c] The area of one face of a cube is  $9 \text{ cm}^2$  , then its volume = .....  $\text{cm}^3$ .
- [d] If the sum of the lengths of the edges of a cube is 60 cm. , then its volume = .....
- [e] If the perimeter of one face of a cube is 8 cm. , then the volume of this cube = .....

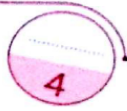


## 2 Choose the correct answer between brackets :

- [a]  $10 \text{ dm}^3 = \dots \text{ cm}^3$  ( 10 or 100 or 1 000 or 10 000 )
- [b] The volume of a cuboid is  $120 \text{ cm}^3$  , if its base area is  $24 \text{ cm}^2$  , then its height = ..... cm. ( 5 or 6 or 10 or 12 )
- [c] The number of vertices of a cube is ..... ( 8 or 12 or 6 or 4 )
- [d]  $1 - 35 \% = \dots$  ( 20 % or 65 % or 30 % or 45 % )
- [e]  $\frac{1}{2}$  day : 18 hours = ..... ( 3 : 2 or 4 : 3 or 2 : 3 or 1 : 9 )

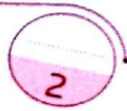


## 3 [a] Which is greater ? The volume of a cube of edge length 5 cm. or the volume of a cuboid of dimensions 6 cm. , 5 cm. and 4 cm.



- [b] If the ratio between the measures of the angles in a triangle is 2 : 3 : 4 Find the measure of each angle.

## 4 The inner dimensions of a cuboid-shaped box are 54 cm. , 60 cm. and 30 cm. , it is needed to put inside it cube-shaped packets of biscuits whose edge length is 6 cm.



Find the number of packets of biscuits which fill the box.

## 5 [a] If a merchant sold his goods for L.E. 5 600 with profit 12 % Find the cost price.



- [b] A metal cuboid with dimensions 56 cm. , 21 cm. and 7 cm. was melted and converted into small cubes with edge length 14 cm. for each.  
Calculate the number of these cubes.

To	
Lesson	6
Unit	3

## 1 Complete :

- [a] The litre is a unit for measuring ..... [b]  $4\frac{2}{5}$  litres = .....  $\text{cm}^3$   
 [c] 3 litres = .....  $\text{dm}^3$  [d]  $0.45 \text{ m}^3$  = ..... litres  
 [e] 680 litres = .....  $\text{m}^3$

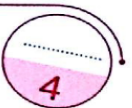


## 2 Choose the correct answer between brackets :

- [a] The inner dimensions of a cuboid container is 20 cm. , 20 cm. and 30 cm. , its capacity = ..... litres.  
 ( 0.12 or 1.2 or 12 or 120 )  
 [b]  $\frac{3}{4}$  litre = ..... mL. ( 0.75 or 7.5 or 750 or 75 )  
 [c] Decimetre is a unit for measuring .....  
 ( capacity or volume or length or weight )  
 [d] 38 millilitres = .....  $\text{cm}^3$  ( 38 000 or 3 800 or 380 or 38 )  
 [e] The two diagonals are perpendicular in .....  
 ( rectangle or rhombus or parallelogram or trapezium )



- 3 [a] A tin in the shape of a cuboid of internal dimensions are 30 cm. , 25 cm. and 40 cm. is filled with oil. Find the price of the oil if the price of one litre is L.E. 3.5



- [b] A cube-shaped tin of inner edge length 40 cm. is full of oil. It is needed to put the oil in a number of bottles each of capacity half a litre. How many bottles are needed ?

- 4 [a] The capacity of a bottle is  $\frac{3}{4}$  litres , is filled with alcohol.

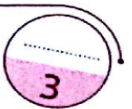
It is wanted to put this amount in small bottles which the capacity of each is  $25 \text{ cm}^3$ . Find the number of small bottles.

- [b] 3.6 litres of water are poured in a cuboid-shaped vessel with a square-base of side length 20 cm. Find the height of water in the vessel.



- 5 [a] A swimming pool in the shape of a cuboid whose internal dimensions are 30 m. , 15 m. and 2 m. Find its capacity in litres.

- [b] The drawing scale of a map is 1 : 1 000 000 If the real distance between two cities is 500 km. Find the distance between them on this map.





To	
Lesson	1
Unit	4

## 1 Complete each of the following :

[a] The data that describe the conditions of individuals using words is called .....

[b] The data that consists of numbers to represent a certain phenomena is called .....

[c] If the dimensions of a cuboid are equal , then it is called a .....

[d]  $500 \text{ m.} : 1 \frac{1}{2} \text{ km.} = \dots\dots\dots : \dots\dots\dots$  (In the simplest form)

[e] The birth date is ..... data.



## 2 Choose the correct answer between brackets :

[a] The opposite data are descriptive except .....  
( the favorite colour **or** birth place **or** age **or** blood species )

[b] The opposite data are quantitative except .....  
( length **or** weight **or** age **or** blood species )

[c] If the edge length of a cube = 4 cm. , then its volume = .....  $\text{cm}^3$   
( 6 **or** 8 **or** 24 **or** 64 )

[d] The fourth proportional of the quantities 3 , 5 and 18 is .....  
( 24 **or** 30 **or** 12 **or** 15 )

[e] 850 millilitres = ..... litres.  
( 0.85 **or** 85 **or** 0.085 **or** 850 000 )



3 Read the written data on the opposite bottle , then classify them into descriptive data and quantitative data.



- 4 [a]** A factory produces 9 000 bottles of soft drink in 12 hours.  
What is the rate of production per hour ?



- [b]** If the drawing scale of a map is 1 : 600 000 and the distance between two cities on this map is 20 cm.

Find the real distance between the two cities in km.

- 5 [a]** The opposite card is  
a membership card of  
a library , answer :

- (1)** What are the quantitative data ?  
**(2)** What are the descriptive data ?

Egyptian Library	
Name : .....	<div>Personal photo</div> <div>Library stamp</div>
Age : .....	
Job : .....	
Membership No. : .....	



- [b]** A school has 450 pupils. One day , 72 pupils were absent.  
Find the percentage of attendance on that day.

01062555317

- 1** Bassem wants to know the favourite sport for the students in his classroom.

The number of students is 36 students.

He asked everyone , the answers were :

(Volleyball - football - football - swimming - tennis - football - walking - swimming - volleyball - walking - football - tennis - football - football - gymnastics - walking - tennis - tennis - swimming - football - swimming - walking - football - walking - tennis - basketball - swimming - swimming - football - basketball - football - walking - swimming - football - football - swimming)

- [a]** Form a frequency table for this data.  
**[b]** What is the number of pupils who prefer tennis ?

- 2** The following table shows the produced amount of vegetables in tons by a farm in a year :

Vegetable	Tomato	Eggplant	Green beans	Potato	Cucumber	Total
No. of tons	20	14	5	25	16	80

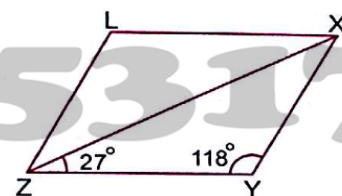
- [a]** Which is the vegetable that has the greatest number of produced tons ? and what is the order of it among the produced vegetables if you arrange them according to the produced amount of each kind ascendingly ?  
**[b]** How many tons of tomato are produced ? And what is the percentage of it ?

- 3** **[a]** In the opposite figure :

XYZL is a parallelogram in which

$m(\angle Y) = 118^\circ$  ,  $m(\angle XZY) = 27^\circ$  , find :

- (1)  $m(\angle YXZ)$                       (2)  $m(\angle LZX)$   
 (3)  $m(\angle LXZ)$                       (4)  $m(\angle L)$



- [b]** A shop made a discount of 10 % for a fridge , if the price of the fridge before discount is L.E. 1 500 Find the price after discount.



**4** Here are the evaluations of 20 students in mathematics :

good	pass	pass	good	weak
excellent	very good	pass	very weak	very good
good	weak	good	pass	pass
good	pass	weak	good	pass



**[a]** Form a frequency table of this data.

**[b]** What is the most common evaluation among the students ?

**[c]** What is the least common evaluation among the students ?

**5** **[a]** The perimeter of a triangular piece of land is 90 m.

Find the length of each of its sides if the ratio among the lengths is 4 : 2 : 3

**[b]** Which is greater in volume ?

A cube of edge length 9 cm. or a cuboid with dimensions 8 cm. , 9 cm. and 10 cm.



**01062555317**

## 1 Complete each of the following :

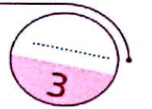
- [a] The difference between the greatest value and the smallest value in a set of individuals is called .....
- [b] If the marks of 4 pupils in a test are 26 , 30 , 13 and 29 , then the range of these marks = .....
- [c] If the values of a frequency distribution lie between 10 and 60 , then the range of this distribution = .....
- [d] If one of the angles of a parallelogram is right , then it will be called .....
- [e] If 100 gm. of food give 300 calories , then the number of calories which are found in 30 gm. of the same food equals .....



## 2 The following data shows the number of holidays that 40 workers of a factory have got during a year :

12    27    14    25    13    22    14    26    11    15  
 30    21    15    22    23    28    16    21    30    25  
 27    16    22    20    26    30    21    15    16    23  
 15    30    28    21    24    15    27    30    21    28

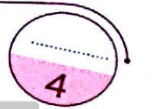
Form a frequency table by using the sets 11 – , 16 – , 21 – , ... , the length of each is 5 days , then find the number of workers who have got 21 days or more in the year.



## 3 The following table gives the frequency distribution of the daily wages in L.E. for 50 workers :

Set of wages	10 –	12 –	14 –	16 –	18 –	20 –	22 –
No. of workers	6	7	12	10	9	4	2

- [a] Find the number of workers whose wages are less than L.E. 16
- [b] What is the percentage of workers whose wages are L.E. 20 or more.



- 4** The following table gives the frequency distribution of the marks of 40 pupils in mathematical examination :

Sets	10 –	20 –	..... –	40 –	50 –	Total
Frequency	4	8	12	10	.....	40

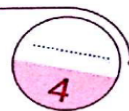


**[a]** Complete the table.

**[b]** Find the number of pupils whose marks are less than 40 and its percentage.

- 5** **[a]** A factory (A) produces 600 lamps in 40 hours.  
Another factory (B) produces 700 lamps in 50 hours.  
Which of the two factories is more efficient ?

**[b]** The ratio between the height of Hany and the height of Bassem equals 9 : 10  
If the height of Hany is 144 cm. , find the height of Bassem.



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- 1** The following table gives the frequency distribution of the ages of 40 students in a school :

The age	6 –	8 –	10 –	12 –	14 –	Total
Number of students	8	9	6	12	5	40

Draw the frequency curve for this distribution.

- 2** The following table shows the marks of 100 pupils in maths :

Marks	20 –	30 –	40 –	50 –	Total
Number of pupils	15	30	40	15	100

**[a]** What is the number of the pupils who got less than 40 marks ?

**[b]** Draw the frequency curve for this distribution.

- 3** Complete each of the following :

**[a]**  $52\% + 28\% + \dots = 1$

**[b]** The ratio  $\frac{3}{7}$ , its first term is ..... and its second term is .....

**[c]**  $400 \text{ m.} : 2 \text{ km.} : 1600 \text{ m.} = \dots : \dots : \dots$

**[d]** The ratio between the side length of a square and its perimeter is .....

**[e]** The range = ..... – .....

- 4** **[a]** If Sally's weight : Yara's weight : Dina's weight is 8 : 9 : 7 and Yara's weight is 4.8 kg. more than Dina's weight.

Find the weight of each of Sally , Yara and Dina.

**[b]** 72 litres of molasses are needed to be put in tins of the same kind , each has a rectangular-shaped base with dimensions 18 cm. and 10 cm. , and height 16 cm. How many tins are needed ?

- 5** The following table gives the frequency distribution of the weekly wages in pounds for the workers in a factory :

Wages (sets)	50 –	60 –	70 –	80 –	90 –	100 –
Number of workers (frequency)	8	10	16	14	10	7

Draw the frequency curve for this data , then find the wage that most of the workers have received.